

WHAT IS CLAIMED IS:

1. An information recording and reproducing apparatus, comprising:

a sound data storing device that stores sound data in association with time data indicating an input time of the sound data;

5 a writing information inputting device that includes a position designating portion that designates a position on an input area and inputs writing information;

a playback selecting device that includes a switch and a position designating portion and that outputs a playback start signal and a playback end signal of the sound data by switching of the switch;

10 a coordinate data detecting device that detects coordinate data of the position designated by the position designating portion of the writing information inputting device in association with times when the position is designated by the position designating portion of the writing information inputting device, and that detects coordinate data of a position designated by the position designating portion of the playback selecting device;

15 a writing information unit storing device that stores the coordinate data of the position designated by the writing information inputting device with the coordinate data divided according to a predetermined condition, as a writing information unit, in association with time data that indicates an input time of the writing information unit;

20 and

a sound data playback device that starts a playback of the sound data from the sound data stored in association with the input time of the writing information unit in response to an output of the playback start signal when playback-designated coordinate data of a position designated by the position designating portion of the playback selecting device is determined to correspond with the writing information unit, and that terminates the playback in response to an output of the playback end signal.

2. The information recording and reproducing apparatus according to claim 1, wherein the sound data playback device includes a determination device that determines the playback-designated coordinate data corresponds to the writing information unit when the playback-designated coordinate data is included in an area

where the writing information unit belongs.

3. The information recording and reproducing apparatus according to claim 1, wherein the sound data storing device stores sound data in association with time data indicating an input start time of the sound data, and the writing information unit storing device stores coordinate data of positions designated by the writing information inputting device, with the coordinate data divided according to a predetermined condition, as a writing information unit, in association with time data indicating an input start time of the writing information unit.

4. The information recording and reproducing apparatus according to claim 1, wherein when an amount of a change in at least one of coordinate data and detected times in two consecutive positions detected by the coordinate data detecting device is beyond a predetermined amount, the writing information unit storing device divides the coordinate data of the consecutive two positions and stores the divided coordinate data for each position as a writing information unit.

5. An information recording and reproducing apparatus, comprising:
a sound data storing device that stores sound data in association with time data indicating an input time of the sound data;

a writing information inputting device that includes a position designating portion and that is used for designating positions on an input area using the position designating portion and inputting writing information;

a playback selecting device that includes a switch and a position designating portion and that outputs a playback start signal and a playback end signal of the sound data by switching of the switch;

a coordinate data detecting device that detects coordinate data of the positions designated by the position designating portion of the writing information inputting device in association with times when the positions are designated by the position designating portion of the writing information inputting device, and that detects coordinate data of the positions designated by the position designating portion of the playback selecting device;

a writing information unit storing device that stores coordinate data of the

positions designated by the writing information inputting device, with the coordinate data divided according to a predetermined condition, as a writing information unit, in association with time data, indicating an input time of the writing information unit; and

a sound data playback device that starts a playback of sound data from the sound data stored in association with the input time of a writing information unit in response to an output of the playback start signal when playback-designated coordinate data of the position designated by the position designating portion of the playback selecting device is determined to correspond with the writing information unit, wherein when the playback-designated coordinate data is determined not to correspond to a writing information unit, the sound data playback device selects an area nearby the playback-designated coordinate data, calculates a playback start time from a positional relationship between a writing information unit in the area nearby the playback-designated coordinate data and the playback-designated coordinate data and from the input time of the writing information unit, and starts a playback of the sound data from sound data stored in association with the calculated playback start time.

6. The information recording and reproducing apparatus according to claim 5, wherein the sound data playback device includes a determination device that determines the playback-designated coordinate data corresponds with the writing information unit when the playback-designated coordinate data is included in an range where the writing information unit belongs.

7. The information recording and reproducing apparatus according to claim 5, wherein the sound data storing device stores sound data in association with time data indicating an input start time of the sound data, and the writing information unit storing device stores coordinate data of positions designated by the writing information inputting device, with the coordinate data divided according to a predetermined condition, as a writing information unit, in association with time data indicating an input start time of the writing information unit.

8. The information recording and reproducing apparatus according to claim 5, wherein when an amount of a change in at least one of detected coordinate data and a detected time is beyond a predetermined amount, the writing information unit storing

device stores subsequent coordinate data as a new writing information unit.

9. The information recording and reproducing apparatus according to claim 5, wherein the sound data playback device finds a first area and a second area which are nearest to the playback-designated coordinate data, the first area having coordinate data smaller than the playback-designated coordinate data and the second area having coordinate data larger than the playback-designated coordinate data, on either X-coordinate or Y-coordinate, and retrieves a time between input times of writing information units in the first and second areas, as a playback start time.

10. The information recording and reproducing apparatus according to claim 9, wherein the sound data playback device calculates the playback start time by determining a distance ratio between a segment from the playback-designated coordinate data to coordinate data of a predetermined position in the writing information unit included in the first area and a segment from the playback-designated coordinate data to coordinate data of a predetermined position in the writing information unit included in the second area and by calculating a time by dividing the time between the input times of writing information units in the first and second areas based on the distance ratio.

11. The information recording and reproducing apparatus according to claim 9, wherein the sound data storing device starts storing the sound data in response to a sound data storing instruction, and wherein, when the first area can not be found, the sound data playback device calculates the playback start time by determining a distance ratio between a segment from the playback-designated coordinate data to coordinate data of a nearest position on an edge of the input area included in the first area and a segment from the playback-designated coordinate data to coordinate data of a predetermined position in the writing information unit included in the second area and by calculating a time by dividing a time that is between a time that the sound data storing was instructed and the input time of the writing information unit in the second area based on the distance ratio.

12. A information recording and reproducing apparatus, comprising:
a sound data storing device that stores sound data in association with time data

indicating an input time of the sound data;

a writing information inputting device that includes a position designating portion and that is used for designating at least one of a plurality of positions on an input area using the position designating portion and inputting writing information;

5 a playback selecting device that includes a switch and a position designating portion and that outputs a playback start signal and a playback end signal of the sound data by switching of the switch;

a coordinate data detecting device that detects coordinate data of positions designated by the position designating portion of the writing information inputting device in association with times when the positions are designated by the position designating portion of the writing information inputting device, and that detects coordinate data of positions designated by the position designating portion of the playback selecting device;

10 a writing information unit storing device that stores coordinate data of positions designated by the writing information inputting device, with the coordinate data divided according to a predetermined condition, as a writing information unit, in association with time data indicating an input time of the writing information unit; and

a sound data playback device that plays back sound data stored from the input time of a writing information unit till the input time of a next writing information unit, in response to an output of the playback start signal, when playback-designated coordinate data of a position designated by the position designating portion of the playback selecting device is determined to correspond with the writing information unit.

13. The information recording and reproducing apparatus according to claim 12, wherein the sound data storing device stores sound data in association with time data indicating an input start time of the sound data, and the writing information unit storing device stores coordinate data of positions designated by the writing information inputting device, with the coordinate data divided according to a predetermined condition, as a writing information unit, in association with time data indicating an input start time of the writing information unit, and wherein the sound data playback device that plays back sound data stored from the input start time of the writing information

unit till the input start time of the next writing information unit, in response to an output of the playback start signal, when playback-designated coordinate data of a position designated by the position designating portion of the playback selecting device is determined to correspond with the writing information unit.

5 14. The information recording and reproducing apparatus according to claim 12, wherein the sound data playback device includes a determination device that determines the playback-designated coordinate data corresponds with the writing information unit when the playback-designated coordinate data is included in an area where the writing information unit belongs in the input area.

10 15. The information recording and reproducing apparatus according to claim 12, wherein when playback-designated coordinate data of a position designated by the position designated portion of the playback selecting device is determined not to correspond with a writing information unit, in response to an output of the playback start signal, the sound data playback device selects an area near the playback-designated coordinate data, calculates a playback start time from a positional relationship between a
15 writing information unit in the area near the playback-designated coordinate data and the playback-designated coordinate data and from the input start time of the writing information unit, and starts a playback of sound data from sound data stored in association with the calculated playback start time.

20 16. The information recording and reproducing apparatus according to claim 12, wherein when an amount of a change in at least one of detected coordinate data and a detected time is beyond a predetermined amount, the writing information unit storing device stores subsequent coordinate data as a new writing information unit.

25 17. The information recording and reproducing apparatus according to claim 12, wherein the sound data playback device finds a first area and a second area which are nearest to the playback-designated coordinate data, the first area having coordinate data smaller than the playback-designated coordinate data and the second area having coordinate data larger than the playback-designated coordinate data, on either X-
30 coordinate or Y-coordinate, and retrieves a time between input times of writing information units in the first and second areas, as a playback start time.

18. The information recording and reproducing apparatus according to claim 17, wherein the sound data playback device calculates the playback start time by finding a distance ratio between a segment from the playback-designated coordinate data to coordinate data of a predetermined position in the writing information unit included in the first area and a segment from the playback-designated coordinate data to coordinate data of a predetermined position in the writing information unit included in the second area and by calculating a time by dividing the time between the input times of writing information units in the first and second areas based on the distance ratio.

19. The information recording and reproducing apparatus according to claim 17, wherein the sound data storing device starts storing the sound data in response to a sound data storing instruction, and wherein when the first area cannot be found, the sound data playback device calculates the playback start time by finding the distance ratio between a segment from the playback-designated coordinate data to coordinate data of a nearest position on an edge of the input area included in the first area and a segment from the playback-designated coordinate data to coordinate data of a predetermined position in the writing information unit included in the second area and by calculating a time by dividing a time that is between a time that the sound data storing was instructed and the input time of the writing information unit in the second area based on the distance ratio.

20. The information recording and reproducing apparatus according to claim 18, wherein the writing information inputting device uses one end of a pen-type member as the position designating portion, the playback selecting device uses another end of the pen-type member as the position designating portion.

21. The information recording and reproducing apparatus according to claim 18, wherein the writing information inputting device and the playback selecting device share one end of a pen-type member as a common position designating portion and the pen-type member is provided with a switch that selects a function of the pen-type member between the writing information inputting device and the playback selecting device.

22. The information recording and reproducing apparatus according to claim

18, wherein the writing information inputting device and the playback selecting device individually use one end of respective pen-type members as the input position designating portion and the playback position designating portion, respectively.

23. A storage medium storing an information recording and reproducing program that can be read by a computer, comprising:

a sound data storing routine storing sound data in association with time data indicating an input time of the sound data;

a coordinate data detecting routine detecting coordinate data of positions designated by a position designating portion of a writing information inputting device for designating at least one of positions on an input area using the position designating portion and inputting writing information, in association with times when the positions are designated by the position designating portion of the writing information inputting device, and detecting coordinate data of positions designated by a position designating portion of a playback selecting device that includes a switch and that outputs a playback start signal and a playback end signal of the sound data by switching of the switch;

a writing information unit storing routine storing coordinate data of positions designated by the writing information inputting device, with the coordinate data divided according to a predetermined condition, as a writing information unit, in association with time data indicating an input time of the writing information unit; and

a sound data playback routine starting a playback of sound data from sound data stored in association with the input time of a writing information unit in response to an output of the playback start signal when playback-designated coordinate data of a position designated by the position designating portion of the playback selecting device is determined to correspond with the writing information unit, wherein when the playback-designated coordinate data is determined not to correspond with a writing information unit, the sound data playback routine selects an area near the playback-designated coordinate data, calculates a playback start time from a positional relationship between a writing information unit in the area near the playback-designated coordinate data and the playback-designated coordinate data and from the input time of

the writing information unit, and starts a playback of the sound data from sound data stored in association with the calculated playback start time.

It is a computer program that can be executed by a computer system, and is stored in a storage medium such as a hard disk, a flexible disk, a CD-ROM, a DVD-ROM, a Blu-ray Disc, a semiconductor memory, and a memory card.